CAD
computer-aided design

Index to Volume 15 Numbers 1–6, 1983, pages 1–376 ISSN 0010–4485

SUBJECT INDEX

A
A fact dependency system for the logic programmer 235
A 'greedy' channel router 135
A hidden line elimination method for curved surfaces 209
A method for the computation of inertial properties for general areas 196
A relational database for non-manipulative representation of solid objects 271
A surface-plotting program suitable for microcomputers 324
Air-supported structures 19
Algebraic forms 41
Algorithm 89, 159, 209, 262, 345, 353
Algorithms for rational Bézier curves 73
An interactive design program for modular building elevations using an Apple II microcomputer 25
An offset spline approximation for plane cubic splines 297
Analysis 262, 288
Analytic modelling 217
Application of CAD to knitting machine design 99
Applications 123
Approximation 167, 297
ARDBID 131
Architectural design 7, 25, 329, 335
Arrays 159
Artificial intelligence 7, 235, 335

B
B-splines 3
Bathrooms 7
Bending operators 79
Bending polyhedral objects 79
Bézier curves 3, 73
Bézier surfaces 159
Bézier triangles 159

BOOKS AND PUBLICATIONS
Akin, J E Application and implementation of finite element methods 184
Autofact 4 302
Barnhill, R E and Böhm, W Surfaces in computer-aided geometric design 304
Besant, C B Computer aided design and manufacture 305
Cellier, F E Progress in modelling and simulation 106
Conference on CAD/CAM technology in mechanical engineering 302
Couger, J D, Colter, M A and Knapp, R W Advanced system development/feasibility techniques 182
Electronic design automation 105
Encarnaçao, J and Krause, F L File structures and databases for CAD 104
Gupta, K C, Garg, R and Chadha, R Computer aided design of microwave circuits 47
Hubka, V translated by Eder, W E, Principles of engineering design 104
Jespers, P G, Sequin, C H and Van de Wiele, F (eds) Design methodologies for VLSI circuits 48
Kaplinsky, R Computer-aided design: electronics comparative advantage and development 305
Krouse, J K What every good engineer should know about computer aided design and computer aided manufacturing 304
Mate, G CAD compass 1982 183
Morris, A J Foundations of structural optimization: a unified approach 183
Mortimer, J The FMS report 184
Muroga, S VLSI system design 304
Neundorf, N Computer aided drawing using the Tektronix graphic system 305
Powell, M J D (ed) Nonlinear optimization 1981 48
Ryan, D L Computer-aided kinetics for machine design 47
Siddall, J N Optimal engineering design 49
Teicholz, E and Berry, B J L Computer graphics and environmental planning 366
Van de Riet, R P and Litwin, W Distributed data sharing systems 104
Whiteman, J R The mathematics of finite elements and applications IV 185

Boundary traversal 217

C
C^1 rational interpolation over an arbitrary triangle 33
C^1 surface 33
CAD interface for textile design 37
CADCAM 223
Calculation 147
Circuit simulation 262
Closed (C^2- and C^3-continuous) Bézier and B-splines curves with given tangent polygons 3
Communication 223
Computer simulation 123

CONFERENCE REPORTS
Joint Anglo-Hungarian seminar on computer-aided geometric design 180
NEL demonstration of CAD and CAM 107
Robotics and manufacturing technology in Japan 181
20th Design Automation Conference 306

Cubic parametric splines 288
Cubic spline generation 196
Cubic spline segments 297
Cubic splines 175, 196, 297
Curve modelling 3, 41, 65, 73, 147, 175, 295, 345
Curve splitting 41
Curved surfaces 209
Curve synthesis 147
Cutting 156

D
Data definition and manipulation languages for a CAD database 131
Database systems: their applications to CAD software design 277
Datebases 131
de Boor's method 295
Design 89, 223
Design and implementation of a software simulation engine 123
Drafting 15, 25, 59

E
Electronic filters 167
Evaluation 196
Expressing standards for computer-aided building design 329

F
Fact dependency system 235, 335
Finite element analysis 201
Flat plate 217
Floating hinge 201
Floating hinge in machine tool structures – finite element representation 201
Form studies relating to air-supported structures by minimization of element surface areas 19
Framed bathrooms, bargains and architectural designing 7
Free-form curves 295
Future CAD systems 223

G
Geometric analysis 217
Geometry 3
Graphical I/O 167
Graphics 217, 361

H
Hidden line elimination 209, 324
Hidden-surface 217
Hierarchical layout system 353
Homogeneous coordinates for computer graphics 361

I
Inertial properties 196
Information transfer 223
Integrated circuits 135
Intersection minimization 115
Interactive smoothing 175, 188
Interactive software 167
Interactive systems 99
Interpretation 59, 89
INTFIS – an interactive package for electronic filter synthesis 167

K
Knitting machines 99
Knot placement for piecewise polynomial approximation of curves 295
Knowledge representation 7

L
Layout 135, 353
Letter to the editor 260
Linear representation 361
Logic programming 235
Logic schematics 115
Logic simulation 123

M
Machine tools 201

Man-machine interface 37
Mathematical approximation 196
Mechanical engineering 15, 59
Microcomputer 25, 324
Minimal surface 19
Modelling polyhedral solids bounded by multi-curved parametric surfaces 141
Modular construction of CAD drawings 15
Modular methods 15
MOS 262
Multivariate splines 345

N
NC machine tools 156
New class of algorithms for the processing of parametric curves 41
Non-expert user 37

O
Offset lines and surfaces 297
On automatic recognition of 3D structures from 2D representations 59
Oscillations 175

P
Parametric curves 41
Parametric polynomials 65
Path delay analysis for hierarchical building block layout systems 353
Periodic splines 147
Placement and routing for logic schematics 115
Polygon meshes 228
Polyhedral objects 79
Polyhedrals 141
Polynomial approximation 295
Pre-tensioned structures 19
Processing technology 277
Programmed logic arrays 89
Prolog 235, 335
Prolog: a prelude to a new generation of CAAD 335

R
Rational curves 73
Reconstruction 59
Recursion 73
Relational model 271
RELAX: a new circuit simulator for large scale MOS integrated circuits 262
Routing 115, 135

S
SASE 329
Sculptured surfaces 345
Semi-automatic system for defining free-form curves and surfaces 65
Shape data 271
Smile: a computer program for partioning of programmed logic arrays 89
Smoothing of bicubic parametric surfaces 288
Smoothing of cubic parametric splines 175
Software architecture 123
Software 131
Solids modelling 79, 141, 156, 271
Standards 329
Subdividing multivariate splines 345
Subdivision algorithms for Bézier triangles 159
Surface modelling 19, 33, 65, 141, 159, 209, 228, 288, 345
Surface plotting 324
SYKORY52 15
Synthesis 167
Synthesis of plane curves with prescribed local geometric properties using periodic splines 147
System design analysis 277

T
Textile design 37
Textiles 99
Topological analysis of polygon meshes 228
Topology 228
The use of vectors to simulate material removed by numerically controlled milling 156
Three-space hidden surface removal using boundary traversal logic 217
Transformation 361
Triangulation 33

V
Visualization 209, 217

2D drawing 15
2D to 3D modelling 59
3D display 99

AUTHOR INDEX

Aldefield, B On automatic recognition of 3D structures from 2D representations 59
Angeles, J Synthesis of plane curves with prescribed local geometric properties using periodic splines 147
Bez, H E Homogeneous coordinates for computer graphics 361
Bézier, P E and Sioussiou, S Semi-automatic system for defining free-form curves and surfaces 65
Biji, A see Swinson, P S G 235
Böhm, W Subdividing multivariate splines 345
Burns, N D see Simms, G J 99
Chappel, I T The use of vectors to simulate material removed by numerically controlled milling 156
Collins, D W An interactive design program for modular building elevations using an Apple II microcomputer 25
Denneau, M, Kronstadt, E and Pfister, G Design and implementation of a software simulation 123
Duncan, R Three-space hidden surface removal using boundary traversal logic 217
Farin, G Algorithms for rational Bézier curves 73
Fenves, S J see Stahl, F I 329
Fiduccia, C M see Rivest, R L 135
Fournier, A and Wesley, M A Bending polyhedral objects 79
Goldman, R N Subdivision algorithms for Bézier triangles 159
Grigg, P J A CAD interface for textile design 37
Harris, J R see Stahl, F I 329
Hering, L Close (C^2- and C^3-continuous) Bézier and B-splines curves 3
Hoffman, G and Tromp, H INTFIS – an interactive package for electronic filter synthesis 167
Hölzle, G Knot placement for piecewise polynomial approximation of curves 295
Iwainsky, A see May, M 115
Kalay, Y A relational database for non-manipulative representation of solid objects 271
Kalay, Y Modelling polyhedral solids bounded by multi-curved parametric surfaces 141
Kjellander, J Smoothing of cubic parametric splines 175
Kjellander, J Smoothing of bicubic parametric surfaces 288
Klass, R An offset spline approximation for plane cubic splines 297
Koparkar, P A and Mudur, S P A new class of algorithms for the processing of parametric curves 41
Koriba, M Database systems: their applications to CAD software design 277
Kronstadt, E see Denneau, M 123
Lelarasmee, E and Sangiovanni-Vincentelli, A RELAX: a new circuit simulator for large scale MOS integrated circuits 262
Mantyla, M Topological analysis of polygon meshes 228
May, M, Iwainsky, A and Mennecke, P Placement and routing for logic schematics 115
Mennecke, P see May, M 115
Micheli, De G and Santomauro, M Smile: a computer program for partitioning of programmed logic arrays 89
Miles, R G and Tough, J G A method for the computation of inertial properties for general areas 196
Mudur, S P see Koparkar, P A 41
Murthy, J R and Reddy, G C Floating hinge in machine tool structure – finite element representation 201
Nakano, T see Tamura, E 353
Ogawa, K see Tamura, E 353
Ohno, Y A hidden line elimination method for curved surfaces 209
Oldham, K see Simms, G J 99
Patnaik, L see Shenoy, R 131
Pereira, F C N see Swinson, P S G 235
Pfister, G see Denneau, M 123
Preiss, K Future CAD systems 223
Reddy, G C see Murthy, J R 201
Rivest, R L and Fiduccia, C M A 'greedy' channel router 135
Sangiovanni-Vincentelli, A See Lelarasmee, E 262
Santomauro, M see Micheli, De G 89
Schwenkel, D Form studies relating to air-supported structures by minimization of element surface areas 19
Shenoy, R and Patnaik, L Data definition and manipulation languages for a CAD database 131
Simms, G J, Oldham, K and Burns, N D Application of CAD to knitting machine design 99
Sioussiou, S see Bézier, P E 65
Sowerbutts, W T C A surface-plotting program suitable for microcomputers 324
Stahl, F I, Wright, R N, Fenves, S J and Harris, J R Expressing standards for computer-aided building design 329
Swinson, P S G Prolog: a prelude to a new generation of CAAD 335
Swinson, P S G, Pereira, F C N and Biji, A A fact dependency system for the logic programmer 235
Tamura, E, Ogawa, K and Nakano, T Path delay analysis for hierarchical building block layout systems 353
Toller, D S and Willey, D R Framed bathrooms, bargains and architectural designing 7
Tough, J G see Miles R G 196
Tromp, H see Hoffman, G 167
Wang, C Y C^1 rational interpolation over an arbitrary triangle 33
Wesley, M A see Fournier, A 79
Willey, D R see Toller, D S 7
Winkler, T Modular construction of CAD drawings 15
Wright, R N see Stahl, F I 329